BORANG PENGESAHAN STATUS TESIS*

JUDUL: FTMK LAB AND ASSET MANAGEMENT SYSTEM : EVENT MANAGEMENT AND TIMETABLE MANAGEMENT MODULE

SESI PENGAJIAN: 2009 / 2010

Saya WONG WOON SOON

(HURUF BESAR)

meng :u membenarkan tesis (PSM/Sarjana/Doktor Falsafah) ini disimpan di Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dengan syarat-syarat kegunaan seperti berikut:

1. Tesis dan projek adalah hakmilik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasidibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. ** Sila tandakan(/)

_____	SULIT	(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)
_____	TERHAD	(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)
/	TIDAK TERHAD	

(TANDATANGAN PENULIS)

Alamat tetap: 81, JLN MERANTI 3, TAMAN SIKAMAT UTAMA, 70400 SEREMBAN NSDK

Tarikh: 26/06/2010

(TANDATANGAN PENYELIA)

EMALIANA KASMURI

Nama Penyelia

Tarikh: 26 JUNE 2010

© Universiti Teknikal Malaysia Melaka

FTMK LAB AND ASSET MANAGEMENT SYSTEM (FLAMS) – EVENT MANAGEMENT AND TIMETABLE MANAGEMENT MODULE

WONG WOON SOON

This report is submitted in partial fulfillment of the requirements for the Bachelor of Computer Science (Software Development)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2010

© Universiti Teknikal Malaysia Melaka

DECLARATION

I hereby declare that this project report entitled

FTMK LAB AND ASSET MANAGEMENT SYSTEM (FLAMS) – EVENT MANAGEMENT AND TIMETABLE MANAGEMENT MODULE

is written by me and is my own effort and that no part has been plagiarized without citations.

STUDENT : Wong Woon Soon (WONG WOON SOON) Date: 26/06/2010

SUPERVISOR : Emme (EMALIANA KASMURI) Date: 26 JUNE 2010

© Universiti Teknikal Malaysia Melaka

DEDICATION

A special dedication goes to my beloved parents who always support me in completing this project. Besides that, I also would like to dedication to my supervisor Emaliana bt Kasmuri for supervising me. Your guidance brings inspection to me.

© Universiti Teknikal Malaysia Melaka

ACKNOWLEDGEMENTS

The Projek Sarjana Muda (PSM) is a subject that pulls over all the idea, knowledge and skill that I have gain during studying in Universiti Teknikal Malaysia Melaka (UTeM). First, I would like to thanks to my supervisor, Ms. Emaliana Kasmuri who has tremendously helps me with his valuable advice and guidance.

Next, I would like to express my deepest appreciation to Ms. Nuridawati and all the committees of Workshop II for supporting and providing me some essential information in developing the system. Last but not least, I thanks my beloved family and friends for giving me moral support and encouragement from the beginning to the end towards the success of my PSM I and II.

© Universiti Teknikal Malaysia Melaka

ABSTRACT

FTMK Asset and Lab Management System (FLAMS) are built for staff and students in FTMK. Due to the complexity of the project, the development is divided into modules. The two main modules being discussed in this whole document are the Event Management and Timetable Management. The current system that use by FTMK to manage the event and timetable information is done manually. Besides that, there is no other computerized system to manage the event and timetable information. The event manager is hard to manage the event information because there have many event is held in FTMK. On the other hand, the academician timetable for FTMK is still done by manually. Timetable manager is take a long time to build the timetable because need to analysis all the information. Therefore, the purpose to develop a computerized system is to replace the current manual manage event and build timetable. All the information is get from internet search, existing system, analysis and research. FLAMS is a web base application, so that the server that use in this system is Glassfish while the database is JavaDB.

© Universiti Teknikal Malaysia Melaka

ABSTRAK

FTMK Asset and Lab Management System (FLAMS) merupakan satu projek yang dibina dengan tujuan kegunaan kakitangan dan mahasiswa di FTMK. Projek ini akan dibahagikan kepada dua modul disebabkan projek ini adalah sangat kompleks. Antara dua modul yang akan dibincang dalam dokumen ini adalah pengurusan acara dan pengurusan jadual. Terdapat beberapa faktor untuk membina sistem ini. Salah satu faktor adalah kerana sistem yang sedang digunakan oleh FTMK untuk mengurus maklumat acara dan mengurus maklumat tentang jadual akademik masih dilakukan secara manual. Sistem yang mengurus maklumat acara dan maklumat tentang jadual akademik masih tidak wujud. Oleh itu, sukar untuk pengurus acara mengurus maklumat acara kerana terdapat banyak acara dianjurkan di FTMK. Selain itu, jadual akademik di FTMK masih dilakukan secara manual. Pengurus jadual akademik perlu mengambil masa yang panjang untuk membina jadual akademik kerana semua maklumat tentang jadual akademik perlu dianalisis. Oleh itu, tujuan untuk membangunkan sistem ini adalah untuk mengganti cara pengurusan manual. Kebanyakkan maklumat yang diambil untuk membantu pembinaan sistem ini adalah dari internet, sistem yang sedia ada, analisis dan penyelidikan. FLAMS merupakan aplikasi web, jadi pelayan yang digunakan adalah Glassfish manakala pangkalan data yang digunakan adalah JavaDB.

© Universiti Teknikal Malaysia Melaka

TABLE OF CONTENTS

CHAPTER	SUBJECT	PAGE
	DECLARATION	**i**
	DEDICATION	**ii**
	ACKNOWLEDGEMENTS	**iii**
	ABSTRACT	**iv**
	ABSTRAK	**v**
	TABLE OF CONTENTS	**vi**
	LIST OF TABLES	**x**
	LIST OF FIGURES	**xii**
	LIST OF ABBREVIATIONS	**xiii**
CHAPTER I	**INTRODUCTION**	
	1.1 Project Background	1
	1.2 Problem statement(s)	2
	1.3 Objective	3
	1.4 Scope	3
	1.5 Project significance	4
	1.6 Expected Output	4
	1.7 Conclusion	5
CHAPTER II	**LITERATURE REVIEW AND PROJECT METHODOLOGY**	
	2.1 Introduction	6
	2.2 Facts and findings	6

© Universiti Teknikal Malaysia Melaka

2.2.1 Domain 7

2.2.2 Existing System 7

2.2.3 Technique 13

2.3 Project Methodology 15

2.3.1 System Development Life Cycle 16

2.3.2 Object- Oriented Analysis Design 18

2.4 Project Requirements 19

2.4.1 Software Requirement 19

2.4.2 Hardware Requirement 20

2.4.3 Other requirements 20

2.5 Project Schedule and Milestones 20

2.6 Conclusion 21

CHAPTER III ANALYSIS

3.1 Introduction 22

3.2 Problem analysis 22

3.2.1 Analyze the current system 23

3.3 Requirement analysis 23

3.3.1 Data requirement 24

3.3.2 Functional Requirement 24

3.3.3 Non-functional Requirement 51

3.4 Conclusion 51

CHAPTER IV DESIGN

4.1 Introduction 53

4.2 High-level Design 54

4.2.1 System Architecture 54

4.2.1.1 Model-View-Controller 55

4.2.1.2 Static view of FLAMS 56

4.2.1.2 Dynamic view of FLAMS 56

4.2.2 User Interface Design 56

4.2.2.1 Navigation Design 56

4.2.2.2 Input Design 57

© Universiti Teknikal Malaysia Melaka

	4.2.3	Database Design	57
		4.2.3.1 Conceptual and Logical Database Design	57
4.3	Detailed Design		59
	4.3.1	Software Design	60
	4.3.2	Physical Database Design	60
4.4	Conclusion		60

CHAPTER V IMPLEMENTATION

5.1	Introduction		61
5.2	Software Development Environment Setup		62
5.3	Software Configuration Management		62
	5.3.1	Configuration Environment Setup	63
	5.3.2	Version Control Procedure	71
5.4	Implementation Status		72
5.5	Conclusion		73

CHAPTER VI TESTING

6.1	Introduction		75
6.2	Test Plan		76
	6.2.1	Test Organization	76
	6.2.2	Test Environment	77
	6.2.3	Test Schedule	77
6.3	Test Strategy		78
	6.3.1	White-Box Testing	79
	6.3.2	Black-Box Testing	79
	6.3.3	Classes of Tests	80
6.4	Test Design		81
	6.4.1	Test Description	81
	6.4.2	Test Data	81

© Universiti Teknikal Malaysia Melaka

6.5 Test Result and Analysis 82
6.6 Conclusion 92

CHAPTER VII PROJECT CONCLUSION

7.1 Observation on Weaknesses and Strengths 94
7.1.1 Strengths 94
7.1.2 Weaknesses 95
7.2 Propositions for Improvement 96
7.3 Contribution 96
7.4 Conclusion 97

© Universiti Teknikal Malaysia Melaka

LIST OF TABLES

TABLE	TITLE	PAGE
5.1	Version Control Procedure of FLAMS	71
5.2	Development status for each module	72
6.1	Personnel Requirements for Testing Activities	76
6.2	Test Environment	77
6.3	Test Schedule	78
6.4	Table Result for Add New Event	82
6.5	Table Result for List of Event	83
6.6	Table Result for Edit Event	83
6.7	Table Result for Add Food Menu	84
6.8	Table Result for Add Tentative Program	84
6.9	Table Result for Upload Picture	84
6.10	Table Result for Upload Video	85
6.11	Table Result for Add Participant	85
6.12	Table Result for Invite Guest	85
6.13	Table Result for Approve Technician	85
6.14	Table Result for Add New Contractor	85
6.15	Table Result for List of food contractor	86
6.16	Table Result for Edit Food Contractor	86
6.17	Table Result for Add New Guest	87
6.18	Table Result for List of guest	87
6.19	Table Result for Edit Guest	87
6.20	Table Result for Add New Program	88
6.21	Table Result for List of Program	88

© Universiti Teknikal Malaysia Melaka

6.22	Table Result for Edit Program	88
6.23	Table Result for Add New Class	88
6.24	Table Result for List of Class	89
6.25	Table Result for Edit Class	89
6.26	Table Result for Add New Subject	89
6.27	Table Result for List of Subject	89
6.28	Table Result for Edit Subject	90
6.29	Table Result for Add New Semester	90
6.30	Table Result for List of Semester	90
6.31	Table Result for Edit Semester	90
6.32	Table Result for Add Offer Subject	91
6.33	Table Result for Add Subject Preference	91
6.34	Table Result for Assign Semester Load	91
6.35	Table Result for Add Timetable	91
6.36	Table Result for Publish Timetable	92
6.37	Table Result for Performance	93

© Universiti Teknikal Malaysia Melaka

LIST OF FIGURES

DIAGRAM	TITLE	PAGE
2.1	Screenshot 1 of Wise Timetable System	9
2.2	Screenshot 2 of Wise Timetable System	9
2.3	Screenshot of Wise Timetable System	10
2.4	User Interface of Event Pro System	12
2.5	Booking Wizard that provide by Event Pro System	12
2.6	Screenshot of Event Pro System	13
2.7	Throwaway Prototyping Life Cycle	14
3.1	Use Case for Event Module	24
3.2	Use case for Timetable Module	26
4.1	Model-View-Controller Architecture	54
5.1	FLAMS Deployment Diagram	62
5.2	Create a new server	63
5.3	Download additional server adapters	64
5.4	Select GlassFish	75
5.5	New Server GlassFish	71
5.6	Server Directory	72
5.7	Java Home Configure	68
5.8	New Database Profile	69
5.9	New Driver Definition	70

© Universiti Teknikal Malaysia Melaka

LIST OF ABBREVIATIONS

FLAMS	-	FTMK Asset and Lab Management System
FTMK	-	Fakulti Teknologi Maklumat dan Komunikasi
GUI	-	Graphic User Interface
IT	-	Internet Technology
MVC	-	Model-View-Controller
OOA	-	Object-Oriented Analysis
OOAD	-	Object-Oriented Analysis and Design
OOD	-	Object-Oriented Design
OOP	-	Object-Oriented Programming
SDLC	-	Software Development Life Cycle

© Universiti Teknikal Malaysia Melaka

CHAPTER I

INTRODUCTION

1.1 Project Background

FTMK Lab & Asset Management System (FLAMS): Event and Timetable module is a project that will be developed for Faculty of Information and Communication Technology, Universiti Teknikal Malaysia Melaka. Before this, there is no other system that is either to manage the asset, lab, stock, event and timetable for FTMK or a system to keep all the information that organize by FTMK or keep track of the stock like A4 paper, printer toner and other item that can be used up. Besides that, there is also no other system that is use to manage the timetable for FTMK even though all of this information is important for FTMK to know the status of stock item, to know the event information that have been organized by FTMK and to know when and which of the lecture room is free to use.

Regarding the scenario state above, it is important for FTMK to have one system that will manage the timetable and keep all the data of stock and event. At the same time, the information could be used to know the status of stock and lecture room. Therefore this project is very useful for FTMK to make sure that they can manage the stock, event and timetable properly.

Timetable, event and stock management module is part of the FTMK Lab & Asset Management System (FLAMS). This system is improving the current timetable, event and stock management of FTMK which is still using the manual paper filing system. Timetable Management module will handle all the information

© Universiti Teknikal Malaysia Melaka

of the subject that in the FTMK. The information that related is lecture information, student information, and also the lab information. The timetable will be create based on the information and create a timetable for lecturer, student and lab. Event Management module will handle all the event information that organize by FTMK. It also can upload and view the picture and video for each event. Besides that, stock management will handle the item information by register it and keep track on the item that nearly finish.

1.2 Problem Statement

At the moment, the FTMK staff is still using the manual paper filing system on the management of the timetable, event and stock. For the timetable management, the information of staff, student and subject are needed to arrange manually and last generate the timetable. Besides that, all the equipment that needed for each subject is record in a form. This is difficult for IT manager to keep track and mange the timetable. For the event management, all the information about the event is record in paper include the organizer, equipment that needs to borrow, and also the information of the refreshment company. Besides that, all the picture and video about particular event is store in computer but not in order. This is difficult for event manager to keep track the information and find the picture or video for a particular event. For the stock management, the information of the equipment is store in a form. These form need to update from time to time if the equipment is used. Next, the transaction record for the equipment is record in paper. Besides that, asset operator is difficult to keep track for the item that nearly finish. Currently, there is no systematic approach for the FTMK staff to manage the timetable, event and stock for FTMK.

© Universiti Teknikal Malaysia Melaka

1.3 Objective

The objectives for this system are:

- To provide systematic solution in manage the timetable, event and the stock of FTMK.
- To provide a computerized mechanism to keep track the timetable and stock of FTMK.
- To develop a computerized system to keep the event information such as pictures and videos.
- To build a computerized system to monitor the status for timetable, event and stock of FTMK.

1.4 Scope

The target users of this system are event manager, asset operator, FTMK staff, academician, asset operator, head of department, timetable system administrator, timetable manger, student and IT manger. The event manager is using the event module for manage the event information, while the IT manager is using this module to assign technician support and approve technical support application. For FTMK staff, they are using the module to apply for technical support. For academician, they are using timetable module to specify subject preference and specify lab requirement. Then, head of department is using the timetable module to manage subject, offer new semester subject and also assign semester load. The timetable system administrator is manage semester and course by using the timetable module. In addition, timetable manager is using the module to manage timetable and also publish timetable. For the student, academician, head of department, timetable system administrator and timetable manager are able to view the timetable by using the timetable module. Last, asset operator is using the stock module to manage the stock.

© Universiti Teknikal Malaysia Melaka

1.5 Project Significant

The FLAMS has been developed to assist Faculty of Information and Communication Technology to manage their event, timetable and stock information. FLAMS will record the event information, stock information and also timetable information. With this information faculty can keep track of the stock availability and manage the event and timetable properly. This will also easy faculty to retrieve any information for the event, timetable and stock from FLAMS.

This system will send notification to academician when head of department is offer new semester subject or assign semester load. This system also provides upload function for event manager to upload images and video that related to the specific event. This wills easy event manager to view the picture or play the video by using the system and no need to search at computer for a specific event. This system also advantages asset operator on keep track to the item that nearly finish.

1.6 Expected Output

The expected output from this project is a web-based application named FTMK Lab & Asset Management System. Event Management module, Timetable Management module and Stock Management module are integrated in FLAMS. A full documentation with explaining for this project is produced and attaches with sample interface and sample email that produced by the system.

© Universiti Teknikal Malaysia Melaka

1.7 Conclusion

FTMK Lab & Asset Management System is developed in order to overcome the problem that faced by the FTMK. Currently, FTMK does not have a specific system to manage the event, timetable and stock since this system are produce to change the current manual system and to minimize the manpower. This system is reduces the time consuming and work in more systematic and effective way.

On next chapter, project methodology, project requirements and milestone will be discussed. This will evaluate the FLAMS in more details and specifically.

© Universiti Teknikal Malaysia Melaka

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

A literature review is a critical look at existing research or study that has significant on the project. Literature review is done by consulting other people work in order to understand and investigate the problem of the research project. In conducting literature review, scholarly articles, books, journal, and other web document. After reviewing all material, a description, summary, and critical evaluation of each work is granted. The aim of a literature review is want the writer to study the existing work in the field insight.

Project Methodology refers to the approaches, techniques and tools used in development of the project or system that will guide developer to accomplish the project.

2.2 Fact and Findings

This section is about the facts and finding gained after collecting, reading through and analyzing various type of materials which are the books, conference proceeding and website. The fact and findings cover not just the case study on the previously developed system, but also the facts regarding suitability methodology will be used to develop this system.

© Universiti Teknikal Malaysia Melaka

To make better understanding about flow of the system some research on different kind of application is also very essential especially to others system that similar with the developed system. Thus, this knowledge gained can be used to create well-designed templates for the system.

2.2.1 Domain

FTMK Lab Asset Management System (FLAMS) module event and timetable is an initiative replaces the conventional manual system of event's records and timetable's records. The system will record the event information, participant information, guest information, approve and assign technician. For the timetable module, the system is records the class information, semester information, lecturer information, subject information, offer subject and assign semester load. Next, analyze location, class, subject, and lecturer information and generate a timetable. Thus, the system is provides an ICT services and management to FTMK. FTMK staff can add new event, choose their preference subject, view the event and timetable using the online system that provide by FLAMS. At the same time, this system also provides systematic way to manage the event information and timetable information. This system will make FTMK staff more easily on generate a timetable.

2.2.2 Existing System

2.2.2.1 Existing System 1: Wise Timetable

Wise Timetable is a product of Wise Technologies Limited Company. Wise Timetable is made in close cooperation with end users: schools and universities (Wise Timetable, 2006).

Before the system generate the timetable, user need to enter some data like school year details, location, equipment, course type, rooms, lecturers, programs, subject areas, groups, and students. User can enter it manually or automatically import the data about lecturers, subject areas, courses and students

© Universiti Teknikal Malaysia Melaka

from database. After all the data is inserted, timetable can be manually or by automatic generation. Finally is save the timetable by giving a file name to it.

Wise Timetable System is providing tooltips function which helps the user to know what function of the button when the mouse is place over the function, an explanation will show (Refer Figure 2.1). Besides that, the timetable can be view by room, by lecturer, by course and by student. This is easier the user to see how the data is interconnected and can see when the lecturers, groups or rooms are occupied. The systems also provide maintenance that is change the room or change the lecturer and all the changes are transparent throughout the timetable. The timetable can be maintained by more persons. User can even maintain different timetables simultaneously at the same rooms. Wise Timetable will allow user to reserve rooms for different timetables and transfer these reservations between them.

In addition, Wise Timetable System provides import data from CSV or Excel files for rooms data, lecturers data, courses data, and students data. (Refer Figure 2.2). If user has data about rooms, lecturers, programs, subject areas, courses and students in any ODBC compatible database, user also can import them. Wise Timetable is compatible with all popular databases (for example Microsoft SQL, Oracle, Interbase, MySQL or any other SQL database supporting ODBC communication and ANSI SQL). (Refer Figure 2.3)

The minimum requirement for using this system is having Pentium 1500MHz or higher processor, Microsoft Windows XP, VISTA, or 7, memory for Windows XP must have a minimum 512 MB of RAM and for Windows VISTA or 7 must have a minimum 1GB of RAM. Moreover, the hard disk space must have at least 500MB space. The minimum resolution monitor is 800 X 600 resolutions. Keyboard, mouse and printer that compatible to any windows are needed. For the software requirement, Microsoft Office Excel and at least one database are needed. Example Microsoft SQL, Oracle, Interbase, MySQL or any other SQL database supporting ODBC communication and ANSI SQL.

© Universiti Teknikal Malaysia Melaka

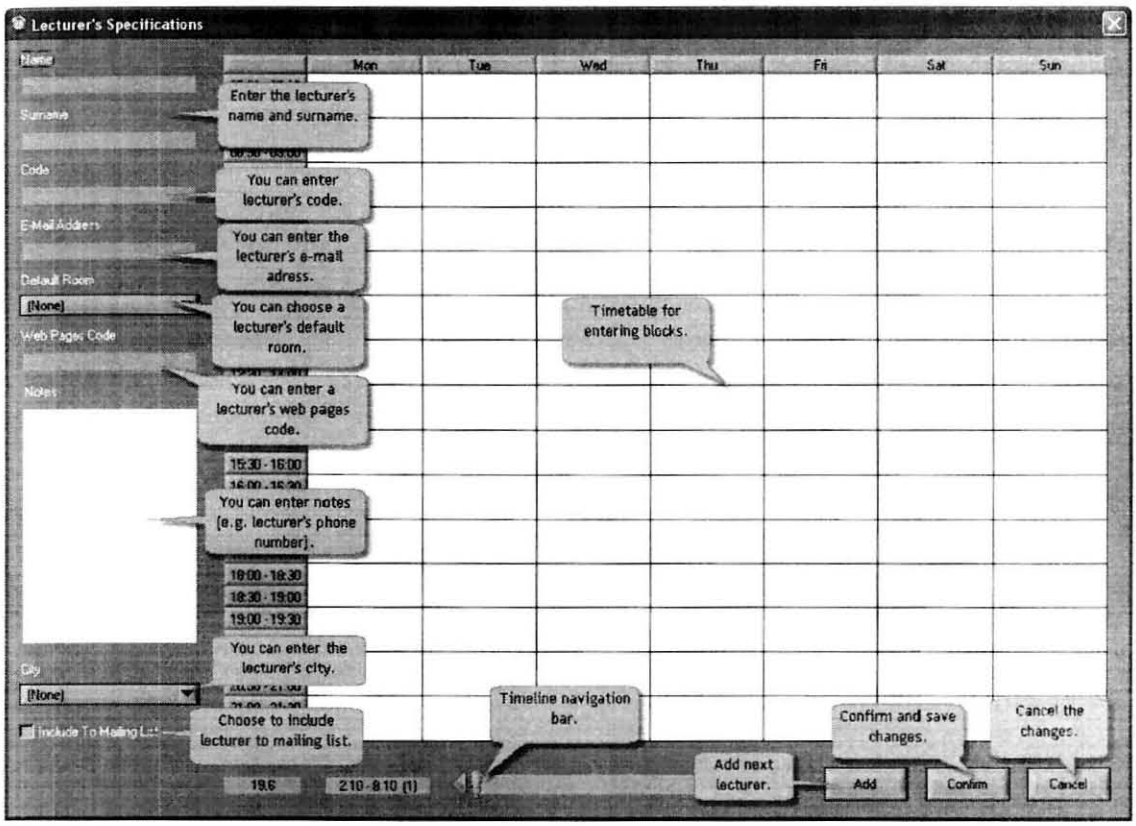

Figure 2.1: Screenshot 1 of Wise Timetable System

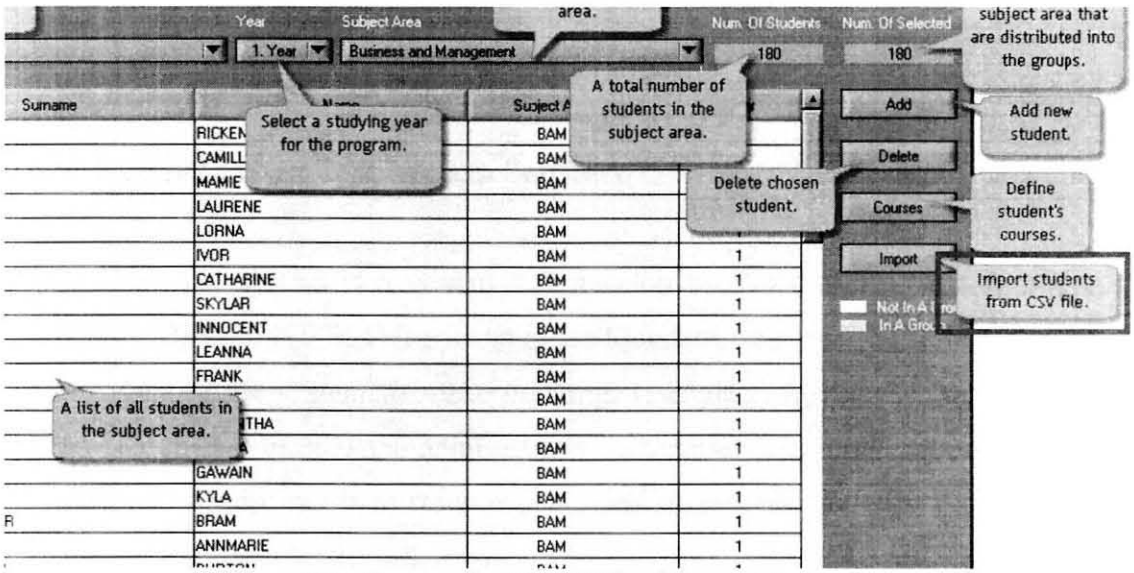

Figure 2.2: Screenshot 2 of Wise Timetable System

© Universiti Teknikal Malaysia Melaka